

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Charles C. Packham et al. Art Unit : Unknown
Serial No. : Examiner : Unknown
Filed : Herewith
Title : SHAVING SYSTEM AND FOILS

Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Prior to examination, please amend the application as follows:

In the specification:

Insert the following paragraph at page 1, line 2:

This is a divisional of U.S. Patent Application Serial Number 09/422,758 filed October 21, 1999, which is in turn a continuation of PCT application serial no. PCT/EP98/02569, filed April 30, 1998, which claims priority from Great Britain application serial numbers 9708847.0 and 9708848.8, filed April 30, 1997.

In the claims:

Cancel claims 1-21.

Amend claims 22 and 25-37 as follows:

22. (Once Amended) A method of producing an electroformed shaving cutter comprising:

CERTIFICATE OF MAILING BY EXPRESS MAIL

Express Mail Label No. EL696312057US

I hereby certify under 37 CFR §1.10 that this correspondence is being deposited with the United States Postal Service as Express Mail Post Office to Addressee with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, Washington, D.C. 20231.

April 5, 2001

Date of Deposit

Signature

Samantha Bell

Samantha Bell

Typed or Printed Name of Person Signing Certificate

- a) providing a substrate that in an at-rest position has a substantially three-dimensional electrically conductive surface;
- b) applying a coating of electrophoretic photoresist to the electrically conductive surface by passing an electrical current therethrough;
- c) exposing the photoresist to a suitable source of electromagnetic radiation through a mask whose shape conforms closely to that of the substrate;
- d) developing the photoresist; and
- e) electrodepositing a metallic layer onto conductive surface regions of the substrate not coated with the photoresist.

25. (Once Amended) A method according to claim 22 further comprising providing the mask with a plurality of non-elongate apertures.

26. (Once Amended) A method according to claim 25 wherein each of the plurality of apertures has a diameter in the range 600 to 800 microns.

27. (Once Amended) A method according to claim 22, further comprising providing the mask with a plurality of elongate apertures.

28. (Once Amended) A method according to claim 27 wherein each of the plurality of apertures has a length of 400 to 2200 μm and a width of 400 to 800 μm .

29. (Once Amended) A method according to claim 22 wherein the metallic layer has a varying relief pattern.

30. (Once Amended) A method according to claim 22, wherein the mask is made of ductile metal.

31. (Once Amended) A method according to claim 22 further comprising separating the metallic layer from the substrate by at least one of peeling and dissolution of the substrate.

32. (Once Amended) A method of manufacturing a three-dimensional electroforming mask comprising:

providing a mandrel defining a three-dimensional surface; and

forming an electrically conductive surface pattern on the three-dimensional surface, said forming comprising etching using a laser.

33. (Once Amended) A method according to claim 32 wherein the forming of the electrically conductive surface pattern further comprises coating an electrically conductive substrate with photoresist and selectively removing portions of the photoresist using the laser.

34. (Once Amended) A method according to claim 32 wherein the forming of the electrically conductive surface pattern further comprises coating an electrically insulating substrate with a conductive layer, and selectively removing portions of the conductive layer using the laser.

35. (Once Amended) A method according to claim 34 further comprising electroforming the conductive layer to a desired thickness.

36. (Once Amended) A method according to claim 35 wherein the etching step is followed by electroforming of the conductive layer to the desired thickness.

37. (Once Amended) A method according to claim 34, further comprising removing the coating from the substrate.

Add claims 38-40.

38. (New) A method according to claim 22, wherein the surface has a non-zero Gaussian curvature.

Applicant : Charles C. Packham et al.
Serial No. :
Filed :
Page : 4

Attorney's Docket No.: 11223-002002 / BAG 80043-
Div.

39. (New) A method according to claim 22, wherein the mask is made of copper.

40. (New) A method according to claim 34 wherein the coating of electrophoretic photoresist has a substantially uniform thickness.

Applicant : Charles C. Packham et al.
Serial No. :
Filed :
Page : 5

Attorney's Docket No.: 11223-002002 / BAG 80043-
Div.

REMARKS

Attached is a marked-up version of the changes being made by the current amendment.
Applicants ask that all claims be examined Please apply any other charges or credits to
Deposit Account No. 06-1050.

Respectfully submitted,



Eric L. Prahl
Reg. No. 32,590

Date: April 5, 2001
Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110-2804
Telephone: (617) 542-5070
Facsimile: (617) 542-8906

20222119.doc

Version with markings to show changes made

In the claims:

Claims 1-21 have been cancelled.

Claims 22 and 24-37 have been amended as follows:

22. (Once Amended) A method of producing an electroformed shaving cutter [in which] comprising:

- a) providing a substrate that in an at-rest position has a substantially three-dimensional electrically conductive surface;
- b) applying a coating of electrophoretic photoresist [is applied] to the [a substrate having an] electrically conductive surface by passing an electrical current therethrough[, the surface having non-zero Gaussian curvature];
- [b]c) exposing the photoresist [is exposed] to a suitable source of electromagnetic radiation through a mask whose shape conforms closely to that of the substrate;
- [c]d) developing the photoresist [is developed]; and
- [d]e) electrodepositing a metallic layer [is electrodeposited] onto [the] conductive surface regions of the substrate not coated with the photoresist.

25. (Once Amended) A method according to [any one of] claim[s] 22 [to 24 in which] further comprising providing the mask [is provided] with a plurality of non-elongate apertures.

26. (Once Amended) A method according to claim 25 wherein [the] each of the plurality of [the] apertures [each have] has a diameter in the range 600 to 800 microns.

27. (Once Amended) A method according to [any one of] claim[s] 22 [to 26], further comprising providing [wherein] the mask [is provided] with a plurality of elongate apertures.

28. (Once Amended) A method according to claim 27 wherein [the] each of the plurality of apertures [have] has a length of 400 to 2200 μm and a width of 400 to 800 μm .

29. (Once Amended) A method according to [any one of] claim[s] 22 [to 28 in which] wherein the metallic layer has a varying relief pattern.

30. (Once Amended) A method according to [any one of] claim[s] 22 [to 29], wherein [in which] the mask is made of ductile metal[, e.g. copper].

31. (Once Amended) A method according to [any one of] claim[s] 22 [to 30 in which] further comprising separating the metallic layer [is separated] from the substrate by at least one of peeling [or by] and dissolution of the substrate.

32. (Once Amended) A method of manufacturing a three-dimensional electroforming mask [for use in the method of any one of claims 22 to 31] comprising [the step of]:
providing a mandrel defining a three-dimensional surface; and
forming an electrically conductive surface pattern on the three-dimensional surface, said forming comprising [by] etching using a laser.

33. (Once Amended) A method according to claim 32 [in which] wherein the forming of the electrically conductive surface pattern further comprises [is produced by] coating an electrically conductive substrate with photoresist and selectively removing portions of the photoresist using the laser.

34. (Once Amended) A method according to claim 32 [in which] wherein the forming of the electrically conductive surface pattern further comprises [is produced by] coating an electrically insulating substrate with a conductive layer, and selectively removing portions of the conductive layer using the laser.

35. (Once Amended) A method according to claim 34 [wherein the coating is applied by] further comprising electroforming the conductive layer to a desired thickness.

36. (Once Amended) A method according to claim [34 or] 35 [in which] wherein the etching step is followed by [a thickening step using] electroforming of the conductive layer to [a] the desired thickness.

37. (Once Amended) A method according to claim 34, [35 or 36 in which] further comprising removing the coating [is removed] from the substrate.

Please add the following new claims:

38. (New) A method according to claim 22, wherein the surface has a non-zero Gaussian curvature.

39. (New) A method according to claim 22, wherein the mask is made of copper.

40. (New) A method according to claim 34 wherein the coating of electrophoretic photoresist has a substantially uniform thickness.